AMENDMENTS TO THE CLAIMS

Claims 1-2. (canceled)

3. (previously presented) The speech coding method according to claim 18, wherein the threshold value is one of a fixed threshold value and a threshold value that is determined in response to signal power of the target signal to be encoded.

4. (previously presented) The speech coding method according to claim 18, wherein the threshold value is prepared for each excitation mode.

5. (previously presented) The speech coding method according to claim 18, wherein the step of converting replaces the coding distortion with the threshold value, when a compared result obtained at the step of comparing indicates that the coding distortion by a predetermined excitation mode is greater than the threshold value, and

the step of selecting selects an excitation mode corresponding to a minimum coding distortion among the coding distortions of all the excitation modes including the coding distortion replaced at the step of replacing.

6. (previously presented) The speech coding method according to claim 19, wherein the step of replacing selects a predetermined excitation mode when the coding distortion corresponding to the excitation mode selected at the step of selecting is greater than the threshold value.

7. (previously presented) The speech coding method according to claim 18, wherein the threshold value is set at a value constituting a predetermined distortion ratio to one of the input speech and the target signal to be encoded.

8. (previously presented) The speech coding method according to claim 18, further comprising a step of deciding characteristic of speech by analyzing at least one of the input speech and the target signal to be encoded, wherein

the step of converting converts the coding distortions output by the step of encoding only when the step of deciding outputs a predetermined decision result.

9. (previously presented) The speech coding method according to claim 18, further comprising the steps of:

deciding characteristic of speech by analyzing at least one of the input speech and the target signal to be encoded; and

calculating a threshold value in response to a decision result at the step of deciding, wherein

the step of comparing carries out its comparison using the threshold value calculated at the step of calculating the threshold value.

10. (previously presented) The speech coding method according to claim 8, wherein the step of deciding makes a decision as to whether characteristic of speech is onset of speech or not.

11. (previously presented) The speech coding method according to claim 18, wherein the plurality of excitation modes comprise an excitation mode that generates non-noisy excitation, and an excitation mode that generates noisy excitation.

12. (previously presented) The speech coding method according to claim 18, wherein the plurality of excitation modes comprise an excitation mode that uses non-noisy excitation codewords, and an excitation mode that uses noisy excitation codewords.

Claims 13-14. (canceled)

15. (previously presented) The speech coding apparatus according to claim 20, wherein said comparator sets its threshold value to be compared with the coding distortion output from the coding unit, at a value constituting a predetermined distortion ratio to the target signal to be encoded.

16. (previously presented) The speech coding apparatus according to claim 20, further comprising a deciding unit for deciding characteristic of speech by analyzing at least one of the input speech and the target signal to be encoded, wherein

the converter converts the coding distortion output from the coding unit, only

when said deciding unit outputs a predetermined decision result.

17. (previously presented) The speech coding apparatus according to claim 20, wherein

the plurality of excitation modes comprise an excitation mode that generates non-noisy

excitation, and an excitation mode that generates noisy excitation.

18. (currently amended) A speech coding method of selecting an excitation mode from a

plurality of excitation modes, and encoding an input speech frame by frame with a

predetermined length by using the excitation mode selected, said speech coding method

comprising the steps of:

encoding in the respective excitation modes a target signal to be encoded that is

obtained from the input speech, and outputting coding distortions involved in the

encoding;

comparing the coding distortions output by the step of encoding a threshold value;

converting the coding distortions output by the step of encoding so as to suppress

selecting the excitation mode which gives a compared result that the coding distortion is

greater than the-a threshold value at the step of comparing; and

selecting the excitation mode in response to the coding distortions converted by

the step of converting.

19. (currently amended) A speech coding method of selecting an excitation mode from a

plurality of excitation modes, and encoding an input speech frame by frame with a

predetermined length by using the excitation mode selected, said speech coding method

comprising the steps of:

encoding in the respective excitation modes a target signal to be encoded that is

obtained from the input speech, and outputting coding distortions involved in the

encoding;

selecting one of the excitation modes in response to a compared result obtained by

comparing the coding distortions involved in the encoding;

comparing the coding distortion corresponding to the excitation mode selected at

the step of selecting with a threshold value; and

replacing the excitation mode selected at the step of selecting to other excitation

mode, in response to a compared result obtained at the step of comparing.

20. (previously presented) A speech coding apparatus that selects an excitation mode

from a plurality of excitation modes, and encodes an input speech frame by frame with a

predetermined length by using the excitation mode selected, said speech coding apparatus

comprising:

coding units for encoding in the respective excitation modes a target signal to be

encoded that is obtained from the input speech, and outputting coding distortions

involved in the encoding;

a comparator for comparing coding distortions output by the coding unit with a threshold value;

a converter for converting the coding distortions output by the coding unit so as to suppress selecting the excitation mode which gives a compared result that the coding distortion is greater than the threshold value at the comparator; and

a selecting unit for selecting the excitation mode in response to the coding distortions converted by the coding units.

21. (previously presented) A speech coding apparatus for selecting an excitation mode from a plurality of excitation modes, and encoding an input speech frame by frame with a predetermined length by using the excitation mode selected, said speech coding apparatus comprising:

coding units for encoding in the respective excitation modes a target signal to be encoded that is obtained from the input speech, and outputting coding distortions involved in the encoding;

a selecting unit for comparing the coding distortions output from the coding units, and for selecting one of the excitation modes in response to a compared result obtained;

a comparator for comparing the coding distortion corresponding to the excitation mode selected by said selecting unit with a threshold value; and

a substituting unit for replacing the excitation mode selected by said selecting unit to other excitation mode in response to a compared result of said comparator.